HOGAN & HARTSON
L.L.P.

COLUMBIA SQUARE
555 THIRTEENTH STREET, NW
WASHINGTON, DC 20004-1109
TEL (202) 637-5600
FAX (202) 637-5910

Writer's Direct Dial
(202) 637-5749

April 14, 1995

BY HAND DELIVERY

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M Street N.W., Room 222
Washington, D.C. 20554

Re: In the Matter of Preparation for International Telecommunication Union World Radiocommunication Conferences, IC Docket No. 94-31

Dear Mr. Caton:

Enclosed for filing is an original and four copies of the Reply Comments in the Second Notice of Inquiry in the above-captioned proceeding of GE American Communications, Inc. Please return to our messenger a date-stamped copy of the enclosed (copy provided).

If you have any questions about this matter, please contact the undersigned.

Respectfully submitted,

Julie T. Barton
Counsel for
GE American Communications, Inc.

Enclosures

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Preparation for International	)	
Telecommunication Union World	)	IC Docket No. 94-31
Radiocommunication Conferences	)	

REPLY COMMENTS OF GE AMERICAN COMMUNICATIONS, INC.

GE AMERICAN
COMMUNICATIONS, INC.

Peter A. Rohrbach
Julie T. Barton
Kyle D. Dixon

Hogan & Hartson L.L.P.
555 Thirteenth Street, N.W.
Washington, D.C. 20004
(202) 637-5600

Of Counsel:
Philip V. Otero, Esq.
GE American Communications, Inc.
Four Research Way
Princeton, New Jersey 08540

April 14, 1995

SUMMARY

GE American Communications, Inc. urges the Commission strive to ensure that the increasing demand for fixed satellite service can be satisfied. As such, the Commission should take no action that would prejudice the existing and expansion requirements of FSS operators. In particular, the Commission should recommend the application of RR2613 in the Ka-band, otherwise ensure that the WRC-95 process does not prejudice the Commission's treatment of the Ka-band, and protect the integrity of FSS services in the planned bands below 17 GHz.

At the same time, it is clear that the public interest requires allocation of additional NVNG spectrum at WRC-95. The projected demand for NVNG services has more than doubled since the original allocation was made in 1992 and development of a vibrant, competitive market in these services is crucial to maintaining the nation's leadership in establishing a global information infrastructure. Delaying the allocation of additional NVNG spectrum would only postpone the time when the legitimate challenges to spectrum sharing below 1 GHz can be tackled successfully.

TABLE OF CONTENTS

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Preparation for International	)	
Telecommunication Union World	)	IC Docket No. 94-31
Radiocommunication Conferences	)	

To: The Commission

REPLY COMMENTS OF GE AMERICAN COMMUNICATIONS, INC.

GE American Communications, Inc. ("GE Americom"), by its attorneys, respectfully submits these reply comments in the Second Notice of Inquiry ("Second NOI") in the above-captioned proceeding.

INTRODUCTION

The 1995 World Radiocommunication Conference ("WRC-95") provides the opportunity to address, on a global basis, issues of great importance to the satellite communications industry. As stated in its Comments in this proceeding, GE Americom is primarily concerned with two issues. First, as a participant in WRC-95, the United States must make every effort to guarantee that the increasing demand for fixed satellite service ("FSS") capacity is met. GE Americom does not oppose in principle the proposed revisions to spectrum allocations for new mobile satellite services ("MSS"). We believe, however, that the United States must strive

for a balance between new opportunities for MSS and the inevitable expansion of FSS.

Second, the United States must vigorously advocate for the allocation of additional NVNG spectrum at WRC-95. The projected market for NVNG services is more than twice the size of the market that was predicted in 1992, when the existing NVNG allocation was made. Further, none of the parties has raised arguments that, properly understood, would seriously undermine either the need for more NVNG spectrum or the feasibility of sharing frequencies below 1 GHz. Delaying allocation of more NVNG spectrum until after WRC-95 would merely postpone the time when the legitimate hurdles to band sharing can be surmounted and, in the meantime, deny the public the benefits of a dynamic, competitive market for NVNG services.

I. NO ACTION SHOULD BE TAKEN AT WRC-95 THAT WOULD PREJUDICE THE EXISTING AND EXPANSION NEEDS OF FSS OPERATORS.

Certain sections of the Second NOI propose to allocate spectrum in the FSS bands to MSS. As GE Americom explained in its Comments, we do not object to such allocation per se, but emphasize that existing and future FSS systems should not be unreasonably prejudiced by entry of MSS. Capacity in the C-band and Ku-band is dwindling and demand for FSS service is increasing as more FSS satellites

become operational.1/ The Commission should not recommend any allocation to MSS that would cause unreasonable interference to current FSS systems, or unreasonable prejudice to opportunities for FSS expansion.

A. The WRC-95 Process Should Not Prejudice the Commission's Treatment of the Ka-Band.

GE Americom emphasized in its Comments that the WRC-95 process should not cause the Commission to lose sight of the still unresolved issues before it with respect to the use of the Ka-band. The pending 28.5-29.5 GHz rulemaking and other proceedings involving the Ka-band should not be prejudiced by actions taken at WRC-95. Given the proposals currently before the Commission, it would be shortsighted for the Commission to recommend allocation in the Ka-band without considering a band sharing plan. 2/

The Commission must recognize the risk to FSS systems if the Ka-band is allocated to MSS feeder links on a primary basis. 3/ MSS should not be

---

1/ GE Americom strongly supports the Commission's proposal to allocate the 13.75 - 14.0 GHz band on a primary basis to FSS. The counterpart band, 11.45 - 11.7 GHz, is currently allocated as an international band only. We urge that this band also be allocated to FSS on a primary basis and concur with Comsat World Systems that this band should not be a candidate band for MSS feeder links. Comments of Comsat World Systems at 5.

2/ GE Americom does not here contend that a band sharing plan would solve the problems of meeting MSS and FSS demand through allocation of spectrum in the Ka-band.

3/ GE Americom wholeheartedly supports Hughes' recommendation that non-GSO feeder links be assigned below 17.7 GHz, subject to the establishment in the planned bands of appropriate PFD limits and coordination with VSAT terminals. Comments of Hughes at 5. None of the MSS proponents seeking allocation of bands

accommodated at the expense of current and future GSO FSS operation. If feeder links are to be located in the Ka-band, they must share the band with FSS on an equitable basis. For this reason, GE Americom strongly opposes Motorola's recommendation that 19.2-19.7 GHz and 29.0-29.5 GHz be allocated to MSS feeder links on a primary basis. 4/ The Commission should not advocate revision to those bands such that GSO FSS is secondary to MSS. GE Americom also objects to Teledesic's suggestion that the Commission recommend allocation of 18.8-19.8 and 28.6-29.6 to non-GSO systems. 5/ The continued operation of GSO FSS systems should not be threatened by primary allocation to non-GSO satellites.

The proposals of the MSS proponents to allocate certain parts of the Ka-band, when added together, are clearly excessive. Teledesic's proposed allocation of 1 GHz, in combination with Motorola's proposed allocation of another 500 MHz in the band and TRW's request for 300 MHz, is likely to limit severely the allocation of Ka-band spectrum to some or all of the other potential users of the Ka-band. As Hughes correctly explains in its Comments, the band cannot accommodate all of its Spaceway system (or any other GSO FSS system), Teledesic, Motorola and TRW

---

above 17.7 GHz has presented any valid reason why bands below 17.7 GHz would not work just as well for MSS.

4/ Motorola at Attachment 1.

5/ Comments of Teledesic at 15-19. Teledesic recommends revisions to the appropriate allocation footnotes almost identical to those recommended by Motorola. Those revisions simply are not necessary to accommodate Non-GSO needs.

feeder links and LMDS. 6/ Thus, without an equitable sharing plan, allocation of spectrum in the Ka-band to MSS feeder links would likely preclude use by GSO FSS.7/

As Comsat Mobile Comm points out in its Comments, sharing between two MSS feeder links is feasible, and would meet the interference criteria included in ITU-R TG 4/5 for MSS systems. Such sharing among MSS feeder links would reduce the overall MSS spectrum requirement at the Ka-band and could be a solution to the problem of surplus demand for spectrum there. 8/ GE Americom encourages further consideration of this issue. 9/

6/ Comments of Hughes at 15-16.

7/ TRW proposes use of 300 MHz of spectrum in the Ka band, but recognizes the importance of equitable sharing between FSS and MSS and has conducted "encouraging" studies on the possibility of co-frequency sharing with FSS users. Comments of TRW at 16.

8/ Comments of Comsat Mobile Communications at 15-16. Teledesic also has studied co-directional sharing between various Non-GSO MSS networks, and concluded that some sharing between it and Motorola is feasible. Comments of Teledesic at 16-17.

9/ GE Americom supports Comsat Mobile Communication's position that the use of 18.9-19.2 GHz bands as proposed -- in the reverse direction of transmission -- would work only in bands in which FSS use in the opposite direction is light. The Commission should recognize that, as Comsat Mobile Comm points out, use by FSS in the future could otherwise be limited to applications that do not include a large number of earth stations.

B. RR2613 Must Continue to Apply in the Ka-band in Order to Protect GSO FSS Systems.

Even if MSS is not given primary status in the Ka-band, allocation of spectrum to MSS feeder links in that band would effectively prevent GSO FSS systems from operating if RR2613 is deleted. The Commission has proposed such deletion, as have a number of the MSS proponents who filed comments in this proceeding. 10/ As GE Americom demonstrated in its Comments, however, RR2613 must be maintained in the Ka-band in order to protect the operations of GSO FSS from unreasonable MSS interference.

The MSS proponents calling for deletion of RR2613 from application to the Ka band claim that operation of MSS systems according to the provisions of that rule puts them at a "regulatory disadvantage." 11/ Yet, the continued applicability of RR2613 to the Ka-band is essential to achieving compatibility between GSO and non-GSO satellite systems. The application of RR2613 ensures that both GSO FSS and non-GSO satellites use the limited available Ka-band spectrum as efficiently as possible. Without RR2613, and in the absence of other protective measures, non-GSO systems would not be required to cease or reduce emissions that interfere with GSO satellites. The threat to GSO FSS satellites from unfettered non-GSO interference would do more than put FSS at a regulatory disadvantage. Such

---

10/ Iridium at 23 and Attachment 1; Motorola at 12 and Attachment 1; Teledesic at 13-14.

11/ Teledesic at 19.

interference could entirely preclude GSO FSS from operation in the Ka-band. Therefore, the Commission should not recommend deletion of RR2613 in the Ka-band.

C. FSS Services Must be Protected if MSS is Allowed to Share the Planned Bands.

The balance between MSS opportunities and the future of FSS is also important in the planned bands below 17 GHz, and in particular 4.5-4.8, 10.7-10.95 GHz, 11.2-11.45 GHz and 12.75-13.25 GHz. The IAC proposal to give MSS priority status (in a reversal band sharing mode) in those bands, currently allocated to FSS on a worldwide basis, is of great concern to GE Americom. Although the IAC proposes to allow MSS feeder links to operate in a reverse sharing mode in these bands, any MSS presence could still cause undue interference.12/

GE Americom therefore urges the Commission to recommend that if MSS systems are allocated to any of the planned bands, a PFD limit should be established at the geostationary arc that would protect ongoing VSAT type communications from interference. Coordination of distances or frequency limits of access at particular feeder link stations would also be necessary.

12/ AT&T also points out that these bands are not otherwise suitable for MSS feeder links because they are heavily occupied by terrestrial fixed services and ITU-R Recommendation SF1005 would require an MSS satellite to transmit at unacceptable power levels in order to avoid interfering with those other users. Comments of AT&T at 2-3.

In the alternative, GE Americom supports allocation of 15.4 - 15.7 GHz for MSS uplinks paired with 12.75 -13.25 GHz for MSS downlinks subject to further study. 13/ MSS uplink allocation in the 15 GHz band would avoid interference with GSO FSS, eliminating both the need to establish a PFD limit and the coordination requirement. Moreover, this allocation would solve the problem of interference with VSAT earth stations, because the MSS uplinks would be in a different band than the VSAT downlinks.

II. THE PUBLIC INTEREST REQUIRES THE ALLOCATION OF ADDITIONAL NVNG SPECTRUM AT WRC-95.

In its initial comments, GE Americom explained that the public interest strongly supports the allocation of additional NVNG spectrum at WRC-95. While GE Americom maintains that enough spectrum has been allocated to allow the Commission to grant the qualified second round applications for new NVNG systems, 14/ the current allocation of spectrum is wholly inadequate to accommodate estimated growth in customer demand for NVNG services in the future. WRC-92 allocated, on a worldwide, primary basis, 3.425 MHz of spectrum for an NVNG market that was projected to include 6 million transceivers by 2000. Now, the market for NVNG is projected to include approximately 13 million

---

13/ See Comments of Loral/Qualcomm at 18; Comments of Comsat Mobile Communications at 14.

14/ See Opposition of GE American Communications, Inc., File No. 26-SAT-P/LA-95 (April 10, 1995) at 11 (stating also that additional NVNG spectrum should be allocated to accommodate operators' future expansion needs).

terminals by 2000--more than twice the number of terminals that were originally projected--and to continue strong growth into the foreseeable future. 15/

The development of a competitive market in NVNG services will benefit providers and end users in the information management, transportation, e-mail and utility industries and will play a crucial role in the near-term development of the nation's telecommunications infrastructure. GE Americom's system, in particular, will allow geopositioning, messaging and data relay service throughout the U.S. and virtually anywhere on Earth, thereby making functions ranging from shipping and tracking to law enforcement and public safety much more efficient. Since it will take several years to implement expanded NVNG systems once the frequencies are allocated, failure to allocate more spectrum for NVNG at WRC-95 will limit choices for operators and end users and hinder the United States' ability to develop and market telecommunications services worldwide.

A. Nothing in the Comments Undermines the Need for Additional NVNG Spectrum.

Despite the fact that some of the NVNG applicants have expressed interest in some of the same frequencies, all of the applicants' comments support the conclusion that additional spectrum below 1 GHz should be allocated to NVNG service. Moreover, the applicants are committed--through their participation in

---

15/ As GE Americom indicated in its initial comments in this proceeding, this strong growth is evidenced by the survey responses of professionals and end users in various industries, as well as by the number of NVNG systems (more than 25) proposed worldwide. Comments of GE American Communications, Inc. at 7-8.

IWG-2 and through their joint commissioning of frequency usage studies--to share any new spectrum that is allocated to NVNG.

Further, other parties' objections to the use of spectrum below 1 GHz by NVNG service are unpersuasive. For example, Motorola, Inc. contends that the first round NVNG applicants will, as a practical matter, exclude any second round licensees from the spectrum near 150 MHz and 400 MHz already allocated. 16/ However, the Commission has already ascertained, in accepting second round applications, that the limited spectrum available for NVNG could nonetheless support more systems than were proposed in the first round. Motorola also claims that the 389-390 MHz band should be reserved for public safety use. Id. at 20-23. Yet, the public safety authorization is only for the 380-385 MHz and 390-395 MHz bands, not the 387-390 MHz band which NVNG proponents have identified. 17/ A similar argument by the Association of Public-Safety Communications Officials-International, Inc. (APCO) fails for the same reason. 18/ GE Americom also notes that it is requesting only 3 MHz out of the 19.9 MHz in this band for its uses.

Likewise, several of the parties claim that NVNG systems cannot share the 150-174 MHz, 450-460 MHz and 470-512 MHz bands because, they claim, these

---

16/ Comments of Motorola, Inc. at 15 n.1.

17/ See id. (Attachment 2) (NATO document agreeing to accommodate emergency services for 380-385 MHz and 390-395 MHz bands).

18/ APCO recommends that allocation of the 380-399.9 MHz band be removed from the agenda of WRC-95 pending study of whether this band can be shared between MSS and public safety officials. Comments of APCO at 2-4.

bands are heavily used. 19/ At best, these claims indicate that NVNG operators will face some challenges in implementing methods for sharing these bands. However, the systems proposed by GE Americom and the other applicants already begin to tackle these challenges. Further, the applicants have commissioned studies to measure the theoretical and actual usage of various bands in the below-1 GHz range. The results of these studies will be forthcoming over the next 4-6 weeks. We firmly believe that these efforts will result in proposals that will enable the NVNG applicants to share these bands effectively with existing users. 20/

B. Delaying the Allocation of Additional NVNG Spectrum Would Harm the Public Interest.

GE Americom and the other NVNG applicants have suggested possible frequencies that would (1) allow NVNG systems to share allocated bands with existing systems without causing unreasonable interference or constraining the growth of those systems; (2) enable (as the market demands) NVNG systems to

---

19/ See, e.g., Comments of APCO at 4-5; Comments of Association of American Railroads (Attachment); Comments of Personal Communications Industry Association at 1-7; Comments of UTC at 3-5, 7-10.

20/ UTC also contends that IWG-2 reported that future NVNG operations below 1 GHz will not conform to the group's own sharing criteria, specifically brief message duration, low duty cycle, and low data rate. Comments of UTC at 8-9 (quoting IWG-2 Interim Report at 16 (Table 2)). This contention is inapposite; the first and second round applications for new NVNG systems clearly conform to the group's sharing criteria and UTC's attempt to evaluate the next generation of NVNG services--before the first generation has even come into being--is mere conjecture. In any event, the sharing criteria were suggested as interim guidelines. The time for evaluating potential NVNG systems is after WRC-95, when the need for NVNG expansion capacity should be addressed.

operate consistently on a worldwide basis; and (3) minimize the costs of end user operation. In particular, GE Americom strongly recommends that WRC-95 allocate the 387-390 MHz band for NVNG downlinks. As indicated, moreover, the participants in IWG-2 have commissioned band-sharing studies for various bands in the below-1 GHz range.

Yet despite our confidence that WRC-95 can identify a reasonable allocation solution that will allow the first and second round NVNG applicants to satisfy expanding, identifiable customer requirements, one harsh reality remains: Given the limited spectrum currently allocated to NVNG services, as well the fact that these services are new, neither the Commission nor WRC-95 can hope to avoid all interference among NVNG and other systems. Rather, the Commission and WRC-95 can only seek to limit unreasonable interference. This fact, and the dramatic, undeniable growth in demand for NVNG services, militate against delaying the allocation of additional NVNG spectrum beyond WRC-95. Indeed, delay will only postpone the inevitable, subject the applicants and future WRC participants to even more challenging allocation decisions and deny end users and their customers the benefit of valuable services--services for which they already have been clamoring.

Consequently, GE Americom strongly recommends that the Commission push for the allocation of additional spectrum now, rather than after WRC-95.

CONCLUSION

GE Americom urges the Commission not to endorse any proposals to allocate Ka-band spectrum or spectrum in the planned bands such that the FSS operators

are unable to satisfy existing or future customer demand. At the same time, GE Americom recommends that the Commission push hard for the allocation of additional NVNG spectrum at WRC-95, since delaying such allocation would preclude operators from satisfying the burgeoning demand for NVNG services and would, in any event, fail to serve the public interest.

Respectfully submitted,

GE AMERICAN COMMUNICATIONS, INC.

By: 

Peter A. Rohrbach
Julie T. Barton
Kyle D. Dixon

Hogan & Hartson L.L.P.
555 Thirteenth Street, N.W.
Washington, D.C. 20004
(202) 637-5600

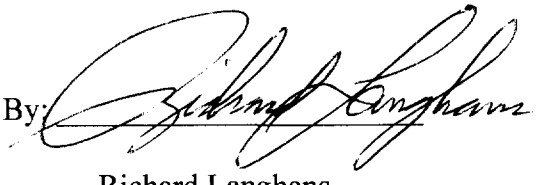
Of Counsel:
Philip V. Otero, Esq.
GE American Communications, Inc.
Four Research Way
Princeton, New Jersey 08540

April 14, 1995

ENGINEERING CERTIFICATE

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in these Reply Comments, that I am familiar with Part 25 of the Commission's Rules and Regulations, that I have reviewed the engineering information submitted in these Reply Comments, and that it is complete and accurate to the best of my knowledge.

Dated this 14th day of April, 1995

By: 

Richard Langhans
Vice President of Engineering
GE American Communications, Inc.

CERTIFICATE OF SERVICE

I, Candyce L. Andujar, do hereby certify that on this 14th day of April, 1995, a copy of the foregoing "Reply Comments of GE American Communications, Inc." was sent by first-class U.S. mail, postage prepaid, or by hand where indicated, to the following:

Fern Jarmulnek *
Chief
Satellite Policy Branch
Federal Communications Commission
2000 M Street, N.W., Room 500
Washington, DC 20554

Kristi Kendall *
Satellite Policy Branch
Federal Communications Commission
2000 M Street, N.W., Room 500
Washington, DC 20554

Thomas Tycz, Chief*
Satellite and Radiocommunications Division
Federal Communications Commission
2000 M Street, N.W.
Room 800
Washington, DC 20554

Scott Blake Harris*
Chief
International Bureau
Federal Communications Commission
2000 M Street, N.W.
Room 800
Washington, DC 20554

Dennis J. Burnett
John E. Wells IV
Haight, Gardner, Poor & Havens
1300 I Street, N.W.
Suite 470E
Washington, DC 20005

Bruce D. Jacobs
Glenn S. Richards
Kevin M. Walsh
Fisher Wayland Cooper Leader and Zaragoza L.L.P.
2001 Pennsylvania Ave., N.W.
Suite 400
Washington, D.C. 20006

Lon C. Levin
Vice President and Regulatory Counsel
American Mobile Satellite Corporation
10802 Parkridge Boulevard
Reston, VA 22091

Mark C. Rosenblum
Kathleen F. Carroll
Ernest A. Gleit
AT&T
295 North Maple Avenue
Room 3261B3
Basking Ridge, NJ 07920

Nancy J. Thompson
General Attorney
COMSAT Mobile Communications
22300 COMSAT Drive
Clarksburg, MD 20871

Robert A. Mazer
Jerold L. Jacobs
Rosenman & Colin
1300 19th Street, N.W.
Suite 200
Washington, DC 20036

Candace Johnson
James G. Ennis
Dr. T. Stephen Cheston
F. Thomas Tuttle
Iridium, Inc.
1401 H Street, NW
Washington, DC 20005

Robert A. Mansbach
COMSAT Corporation
COMSAT World Systems
6560 Rock Spring Drive
Bethesda, MD 20817

John P. Janka
Raymond B. Grochowski
Latham & Watkins
1001 Pennsylvania Avenue, NW
Suite 1300
Washington, DC 20004-2505

Norman P. Leventhal
Raul R. Rodriguez
Stephen D. Baruch
David S. Keir
Leventhal, Senter & Lerman
2000 K Street, NW
Suite 600
Washington, DC 20006

Leonard Robert Raish
Fletcher, Heald & Hildreth, P.L.C.
1300 North 17th Street
11th Floor
Rosslyn, VA 22209

Leonard S. Kolsky
Michael D. Kennedy
Stuart E. Overby
Barry Lambergman
Motorola, Inc.
1350 I Street, NW
Suite 400
Washington, DC 20005

Robert M. Gurss
Wilkes, Artis, Hendrick & Lane,
Chartered
1666 K Street, NW #1100
Washington, DC 20006

Thomas J. Keller
Sari Zimmerman
Verner, Liipefert, Bernhard, McPherson
and Hand, Chartered
901 15th Street, NW, Suite 700
Washington, DC 20005

Robert B. Kelly
Kelly & Povich, PC
1101 30th Street, NW
Suite 300
Washington, DC 20007

Victor Tawil
Vice President
Association for Maximum
Service Television, Inc.
1776 Massachusetts Ave., NW
Suite 300
Washington, DC 20036

Jonathan D. Blake
Ronald J. Krotoszynski, Jr.
Covington & Burling
1201 Pennsylvania Ave., NW
P. O. Box 7566
Washington, DC 20044

Marilyn Mohrman-Gillis
General Counsel
Association of America's Public
Television Stations
1350 Connecticut Ave., NW
Suite 200
Washington, DC 20036

Sam Antar
Vice President, Law & Regulation
Capital Cities/ABC Inc.
77 West 66th Street
16th Floor
New York, NY 10023

Mark W. Johnson
Washington Counsel
CBS, Inc.
1634 I Street, NW
Washington, DC 20006

Molly Pauker
Vice President, Corporate & Legal Affairs
Fox, Inc. & Fox Television Stations, Inc.
5151 Wisconsin Avenue, NW
Washington, DC 20016

Howard Monderer
National Broadcasting Company, Inc.
1229 Pennsylvania Ave., NW
11th Floor
Washington, DC 20004

J. Laurent Scharff
Reed Smith Shaw & McClay
1200 18th Street, NW
Washington, DC 20036

Douglas S. Land
Vice President & General Counsel
9 Broadcast Plaza
Secaucus, NJ 07096

Henry L. Baumann
Barry D. Umansky
Kelly T. Williams
Robin L. Miller
National Association of Broadcasters
1771 N Street, NW
Washington, DC 20036

Howard N. Miller
Senior Vice President
Broadcast Operations
Engineering and Computer Services
1320 Braddock Place
Alexandria, VA 22314

Charles W. Kelly, Jr.
President
Society of Broadcast Engineers, Inc.
8445 Keystone Crossing
Suite 140
Indianapolis, Indiana 46240

Dr. Robert L. Riemer
HA-562
National Research Council
2101 Constitution Ave., NW
Washington, DC 20418

Paul J. Feldman, Esq.
Fletcher, Heald & Hildreth
1300 North 17th Street
11th Floor
Rosslyn, VA 22209

Mr. Richard G. Gould
Telecommunications Systems, Inc.
1629 K Street, NW
Suite 600
Washington, DC 20006

Mark J. Golden
Personal Communications Industry Assn
1019 19th Street, NW
Suite 1100
Washington, DC 20036

Jeffrey L. Sheldon
General Counsel
UTC
1140 Connecticut Ave., NW
Suite 1140
Washington, DC 20036

Jill Abeshouse Stern
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW
Washington, DC 20037

Leslie A. Taylor
Leslie Taylor Associates
6800 Carlynn Court
Bethesda, MD 20817-4302

Albert J. Catalano
Ronald J. Jarvis
Catalano & Jarvis, P.C.
1101 30th Street, NW
Suite 300
Washington, DC 20007

Robert A. Mazer
Rosenman & Colin
1300 19th Street, NW
Suite 200
Washington, DC 20036

Albert Halprin
Stephen L. Goodman
Halprin, Temple & Goodman
1100 New York Avenue, NW
Suite 650 East Tower
Washington, DC 20005

Tom W. Davidson, P.C.
Jennifer A. Manner, Esq.
Akin, Gump, Strauss, Hauer & Feld, L.L.P.
1333 New Hampshire Avenue, NW
Suite 400
Washington, DC 20036

John T. Scott, III
William D. Wallace
Crowell & Moring
1001 Pennsylvania Ave., NW
Washington, DC 20004-2505

Richard Barth, Director
Office of Radio Frequency Management
NOAA
Room 3336
Federal Building 4
Suitland, MD 20233
E/OSD6

Russell L. Schweickart
Executive Vice President
CTA Commercial Systems, Inc.
6116 Executive Boulevard, Suite 800
Rockville, MD 20852

David A. Bayer
President
Leo One USA Corporation
150 North Meramec Avenue, Suite 620
St. Louis, MO 63105

Ashok Kaveeshwar
President
STARSYS Global Positioning, Inc.
4400 Forbes Boulevard
Lanham, MD 20706-4392

Alan Parker
President
Orbital Communications Corporation
21700 Atlantic Boulevard
Dulles, VA 20166-6801

Charles W. Ergen
President
E-SAT, Inc.
90 Inverness Circle East
Inglewood, CO 80112

Joseph F. Sedlak
Director of Government Relations
Volunteers in Technical Assistance
1600 Wilson Boulevard, Suite 500
Arlington, VA 22209

Nader Modanlo
President
Final Analysis Communication
Services, Inc.
7500 Greenway Center, Suite 1240
Greenbelt, MD 20770

ITS*
1919 M Street, N.W.
Room 246
Washington, DC 20554

* Hand-delivery

Candyce L. Andujar

Candyce L. Andujar